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Bio-Equivalence of Doxycycline in Two Preparations in Broiler Chickens

Authors : Abdelrazzag Elmajdoub

Abstract : The present study was designed to investigate the bio-equivalence of doxycycline in Dolistin® and Colidox® at a dose rate of 10 mg doxycycline/kg of body weight in 48 clinically normal broiler chickens. After oral administration, plasma levels of doxycycline peaked after 2 hours post-dosing without significant differences between the two products and it could be detected therapeutically and exceeded the minimum inhibitory concentration (MIC) for most micro-organisms sensitive to doxycycline for 12 hours. The disposition kinetics of doxycycline in the two products following oral administration revealed that the maximum plasma concentrations (Cmax.) were 22.65 and 21.80 µg/ml and attained at (Tmax.) 2.10 and 2.20 hours, respectively. Doxycycline in both of the products was eliminated with half- lives (t0.5α) equal to 7.70 and 6.93 hours, respectively. The mean systemic bio availabilities of doxycycline in both of the products after oral administration in chickens were 80.60 and 79.70%, respectively. It was concluded that doxycycline in the form of Dolistin® and Colidox® needs a dose equivalent to 20 mg doxycycline/kg of body weight a day is better to keep the plasma concentration higher than the MIC.

Keywords : tetracyclines, doxycycline, bioavailability, broilers, chickens
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